

WHAT IS CLAIMED IS:

1. A method for obtaining information for packets transmitted over a network, comprising:
transmitting a plurality of packets from a sender to a
5 receiver, including at least one selected packet;
associating a sender-relative timestamp with each
selected packet transmitted;
receiving at least some of the plurality of packets;
associating a receiver-relative timestamp with each
10 selected packet received; and
associating a latency based on the sender-relative
timestamp and the receiver-relative timestamp associated with
each selected packet received.

15 2. The method of claim 1 wherein associating the
sender-relative timestamp includes placing a local timestamp
of the sender into each selected packet.

20 3. The method of claim 1 wherein associating the
receiver-relative timestamp includes placing a local timestamp
of the receiver into each selected packet.

4. The method of claim 1 wherein associating the
sender-relative timestamp includes placing a local timestamp

of the sender into each selected packet, and associating the receiver-relative timestamp includes placing a local timestamp of the receiver into each selected packet.

5 5. The method of claim 1 further comprising uniquely identifying each selected packet.

6. The method of claim 5 wherein uniquely identifying each selected packet includes writing a sequence number.

10 7. The method of claim 1 further comprising normalizing the latency associated with each selected packet.

15 8. The method of claim 7 wherein at least two selected packets are received, and wherein normalizing the latency includes selecting the lowest latency from each of the latencies associated with each selected packet.

20 9. The method of claim 7 wherein normalizing the latency includes detecting at least one timer jump and adjusting information maintained for each selected packet to compensate therefor.

10. The method of claim 7 wherein normalizing the latency includes, detecting clock skew, and adjusting information maintained for each selected packet to compensate for the clock skew.

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11. The method of claim 10 wherein a plurality of selected packets are received, and wherein detecting clock skew includes logically finding a slope based on information maintained with the selected packets.

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12. The method of claim 1 further comprising, normalizing the sender-relative timestamp associated with each selected packet.

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13. The method of claim 1 further comprising, normalizing the receiver-relative timestamp associated with each selected packet.

14. The method of claim 1 wherein the network is a controlled network, and further comprising running a calibration phase during transmission of at least some of the transmitted packets.

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15. The method of claim 1 further comprising, generating noise by transmitting other packets on the network.

16. The method of claim 1 further comprising, enabling
5 network quality of service.

17. The method of claim 1 further comprising, detecting dropped packets.

10 18. A computer-readable medium having computer-executable instructions for performing the method of claim 1.

19. A system for obtaining information transmitted over a network, comprising:

15 a network sender system, including:

a sender process configured to cause transmission of a plurality of selected packets on the network; and

20 a sender component configured to associate a sender timestamp of the sender with each selected packet;

and,

a network receiver system configured to receive each selected packet transmitted on the network, the receiver
25 system including:

a receiver component configured to associate a receiver timestamp with each selected packet received; and

a receiver process, the receiver process maintaining information corresponding to the sender timestamp and receiver timestamp in association with each selected packet.

20. The system of claim 19 further comprising, a process that normalizes the sender timestamp and receiver timestamp associated with each selected packet.

21. The system of claim 19 further comprising a process that determines a latency for each selected packet based on the information corresponding to the sender and receiver timestamps.

22. The system of claim 21 wherein the receiver process includes the process that determines each latency.

23. The system of claim 21 further comprising, a process that normalizes each latency.

24. The system of claim 21 wherein the sender system includes a sender clock that maintains time at a first rate

and the receiver system includes a receiver clock that maintains time at a second rate, and further comprising, a process that adjusts each latency to compensate for a difference between the first rate and second rate.

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25. The system of claim 21 further comprising, a process that compensates for a timer jump.

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26. The system of claim 19 further comprising a noise generator connected to the network, and a noise sink connected to the network.

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27. The system of claim 19 wherein the sender component runs in a kernel mode of the sender.

28. The system of claim 19 wherein the receiver component runs in a kernel mode of the receiver.

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29. A computer-readable medium having stored thereon a data structure, comprising:

a first field comprising data representative of a packet send time;

a second field comprising data representative of a packet receive time; and

a third field comprising data representative of a packet latency time.

30. The data structure of claim 29 wherein the computer-
5 readable medium comprises a data transmission medium.

31. The data structure of claim 29 further comprising, a fourth field comprising data representative of a packet sequence number.

10 32. The data structure of claim 29 wherein the packet latency time is normalized relative to another packet latency time.

15 33. The data structure of claim 29 wherein the packet send time is normalized relative to another packet send time.

20 34. The data structure of claim 29 wherein the packet receive time is normalized relative to a packet send time.

35. A computer-readable medium having stored thereon a data structure, comprising:

a first field comprising data representative of a packet sequence number;

a second field comprising data representative of a packet
send time; and

a third field comprising data representative of a packet
receive time.

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36. The data structure of claim 35 wherein the computer-
readable medium comprises a data transmission medium.

37. The data structure of claim 35 further comprising, a
10 fourth field comprising data representative of a packet
latency.

38. The data structure of claim 37 wherein the packet
send time, packet receive time and packet latency time are
15 each normalized.

40. A method for obtaining information for packets
transmitted over a network, comprising:

transmitting a plurality of test packets from a sender to
20 a receiver, and for each transmitted packet:

writing a sequence number into a first field;

and

writing a sender-relative timestamp into a
second field;

and,

receiving at least some of the plurality of test packets,
and for each packet received:

5 writing a sender-relative timestamp into a
 third field; and

 maintaining information corresponding to the
sequence number, the sender-relative timestamp and
the receiver-relative timestamp.

10 41. The method of claim 40 wherein the information
corresponding to the sender-relative timestamp and the
receiver-relative timestamp includes a value indicative of a
latency.

15 42. The method of claim 41 wherein the value indicative
of the latency is normalized relative to at least one other
latency.